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Public Comments on Improving Wireless Emergency Alerts and Community-Initiated Alerting,:========

Title: Improving Wireless Emergency Alerts and Community-Initiated Alerting,
FR Document Number: 2015-31234
RIN:
Publish Date: 12/14/2015 12:00:00 AM

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of Improving Wireless Emergency Alerts and Community-Initiated Alerting	))))))	PS Docket No. 15–91; FCC 15–154

To: The Commission

Comments by the AWARN Coalition

I. An Innovative Approach to Improving WEAs

The AWARN Coalition applauds the goals of the Commission for improving public alerting. We also believe that the Commission will best achieve its overall goals by taking a more holistic approach beyond focusing on Wireless Emergency Alerts (WEAs) as presently conceived. Beyond a simple increase in text message characters, the more ambitious goals of the Proposed Rulemaking essentially attempt to force Commercial Mobile Services (CMS) networks to provide enhanced alerting capability for which their architecture is largely unsuited. While the proposed rule opens the door to technological innovation, more directly including spectrum sharing and device interoperability as options could lead to greater improvements for WEAs in particular and public alerting in general.

II. Wise Spectrum Use for One of the Commission's Highest Priorities

The Advanced Warning and Response Network (AWARN) offers a cost-effective and timely means to achieve most of the goals proposed for WEAs, without compromising the capacity of wireless networks to provide the critical point-to-point communications for which they are designed. By leveraging the one-to-many architecture of broadcasting and the power of next-generation transmission technologies, AWARN will deliver rich media content to an unlimited number of mobile phones or other devices without requiring any bandwidth from the wireless network. This means high reliability and mass, instantaneous distribution, which is crucial in emergency events when cellular networks are most vulnerable to unintentional denial of service due to data traffic overload.

These AWARN Coalition comments address some of the specific proposed rules for WEAs. More fundamentally, we identify steps toward achieving what the Notice states as one of the Commission's highest priorities — "to ensure that all Americans have the capability to receive timely and accurate alerts, warnings and critical information regarding disasters and other

emergencies." These comments also address what the Notice describes as the Commission's "overarching strategy to advance the nation's alerting capability, which includes both WEA and the Emergency Alert System (EAS), to keep pace with evolving technologies and to empower communities to initiate lifesaving alerts."

III. Advanced Warning and Response Network for a 21st Century America

AWARN is a next-generation, dual-use, public alert and warning system for a mobile, 21st Century America. AWARN utilizes the nation's existing terrestrial television broadcasting spectrum and infrastructure and the powerful next-generation broadcasting platform, ATSC 3.0. Advanced emergency alerting capabilities, on which AWARN is built, are engineered into the core architecture of the new ATSC 3.0 industry standard. Other capabilities include flexible use of spectrum, robustness (which improves indoor reception), mobile, Ultra HD, hybrid services, accessibility, and personalization/interactivity.

AWARN uses the Common Alerting Protocol (CAP) and is designed for seamless incorporation into the U.S. Integrated Public Alert and Warning System (IPAWS). AWARN builds upon the Mobile Emergency Alert System (M-EAS) developed during a pilot project and standardized by the Advanced Television Systems Committee (ATSC) in 2013. ATSC is an international, non-profit organization developing voluntary standards for digital television, including the 3.0 version of the standard named after it.

Underlying ATSC 3.0 Standard Moving Toward Adoption

The underlying technology on which AWARN is built, ATSC 3.0, is moving rapidly toward adoption in the U.S. and South Korea. 2015 was a banner year for progress toward the next-generation television broadcasting platform, with most of the standards in the ATSC 3.0 suite of standards – including the over-the-air transmission system (Physical Layer), advanced video encoding, Internet Protocol transport, electronic service guides and closed captioning – approved for "Candidate Standard" status. In a year-end statement, ATSC President Mark Richer said, "Now that ATSC 3.0's core technologies have been defined, broadcast and consumer equipment manufacturers can proceed with confidence in building prototype gear to test and demonstrate the capabilities of next-gen broadcast television next year [2016]."[1]

IV. Response to Notice of Proposed Rulemaking

A. WEA Messaging

1. Increasing Maximum WEA Character Length

The AWARN Coalition strongly supports the Commission's goal of expanding the content of alerts. We agree with the National Center for Missing and Exploited Children, the National Weather Service, CSRIC IV, START and FEMA that the public needs more than 90 characters to understand the nature of an emergency and take responsive action as advised by alert originators. Otherwise, as noted in the *Start Report*, "milling" occurs which delays response. It is

[1] "10 More Next-Generation Broadcasting Standards Moving To ATSC 3.0 'Candidate Standard' Status," Statement by the

notable that many WEA messages today advise recipients to "check local media" for more information, which can increase milling. Unfortunately, in emergencies many people using mobile devices may not have timely access to a television or radio to acquire the additional information that the WEA advises them to seek.

It should be noted that we expect ATSC 3.0 reception to be enabled on a wide range of consumer devices, not just smartphones and other mobile devices. For example, the major gains in robustness with ATSC 3.0 will greatly improve indoor reception on fixed devices, *e.g.,* TV sets and computers. This is especially important with the growth of "cord-cutting" and the related increase in over-the-air reception of television signals. Because AWARN is native to the ATSC 3.0 signal, all devices that are ATSC 3.0-capable will receive AWARN alerts.

We caution, however, against forcing a wide range of content onto the small screen of a mobile device in the initial text alert. The NPRM notes the concern of some alert originators that the public might be unlikely to read a message that is too long. Also, the longer information may not apply to each individual equally and the alert may become burdensome. Other approaches beyond simply expanding WEA text messages should be considered.

With an AWARN alert, users are given the *option* to select specific and timely rich-media information pertaining specifically to that alert. Everyone's device in a geo-targeted space would receive a short text-based banner alert. Devices also will receive an icon that indicates that other emergency content has been transmitted and stored in the background on the device (whether mobile or fixed, indoor or outdoor). Because the emergency content is already "forward deployed" through AWARN, users have the option to instantly access those files if and when there is a need.

The AWARN Coalition suggests a multi-faceted approach, which would include "hybrid" broadcast/broadband networks. No single alerting pathway can or should be expected to solve all the requirements of an advanced public warning system. A complimentary "division of labor" among wireless networks, next-generation broadcasting, and interoperable mobile and other consumer devices presents the greatest opportunity to achieve the Commission's goals.

2. Classifying Emergency Government Information

As the proposed rule notes, "FEMA suggests that communities need the ability to share information beyond the nature of an emergency and how to respond to that emergency; they need the ability to provide additional instructions and information that may contribute to saving lives." The AWARN Coalition agrees with FEMA and supports adding a fourth classification to alert messages, "Emergency Government Information," although not necessarily for WEAs.

It is important to note that AWARN is not just an alerting system. It is the Advanced Warning and *Response* Network. AWARN is designed to provide critical information *during and after* disaster events, as well as before. CSRIC IV, as noted in the NPRM, provided examples of the proposed Emergency Government Information, including "boil water" advisories and shelter location information. AWARN can easily distribute similar information to a wide range of ATSC

3.0-enabled devices. And with the inherent one-to-many architecture of broadcasting, AWARN can send this and other rich media content to an unlimited number of devices – simultaneously.

Not only does AWARN provide bandwidth for rich-media content of all kinds, it also brings high reliability when the electric grid is down. That is because broadcast television and radio stations are "hardened" with back-up generators and fuel reserves so that they can stay on-the-air even when electricity to whole regions is cut. When Super Storm Sandy, for example, incapacitated much of the electric grid – and the cellular infrastructure – in the Tri-State area, every television station serving the region stayed on-the-air.[2]

For decades, television and radio stations in large numbers have had back-up generators and fuel reserves. The Commission's Media Security and Reliability Councils I & II after the 9/11 attacks of 2001 reaffirmed this voluntary preparedness investment by broadcasters and recommended it for the future as a "best practice" for continuity of operations. Additionally, the Warning, Alert and Response Network (WARN) Act of 2006 provided funding to noncommercial television licensees to, in part, install or upgrade back-up power, which significantly added to the number of stations that are able to ride-out electric power disruptions.

3. Content in WEA Alerts

As noted above, the AWARN Coalition supports policies to expand and enhance alert messages. Simply including telephone numbers and URLs in WEA messages, however, can accelerate network overload as people try to make calls or click on web links. A better approach is to leverage the rich-media capabilities of AWARN combined with the internal memory of mobile and other smart devices to download and store vital emergency information that cannot fit into a text message. Instead of users requesting critical information by calling a number or accessing a website, users can receive life-saving information that is ubiquitously transmitted and stored in the background on devices as the initial alert is sent.

This rich-media information is sent by alert originators, transmitted via AWARN over the broadcast signal, and downloaded in the background to user devices. The content could include video, radar images and evacuation maps; local news and weather coverage; text, photographic, or pictorial instructions; inundation maps; plume models for chemical or radiological releases; and shelter locations, treatment protocols, and other recovery information. People in harm's way would have this deeper alert and response information sent via AWARN literally at their fingertips. They would only need to open a menu on their device and select the files most relevant to them.

4. Providing Multilingual WEA Messages

The AWARN Coalition supports FEMA's recommendation that WEA should be enhanced to support delivery of alert messages in languages other than English if the alert is made available by the originator in other languages. As noted in the NPRM, "FEMA observes that '[t]he IPAWS system as currently deployed and based upon the Common Alerting Protocol standards is

[2] "NYC TV Broadcasters Stay On-Air During Sandy," *TV Technology*, November 11, 2012

capable of supporting multiple languages beyond English if the originator of the alert message provides the alert in additional languages." The AWARN Coalition notes that IPAWS needs a delivery mechanism to support multilingual alerting and suggests that AWARN can be that mechanism.

Irrespective of whether WEAs can be configured to provide multilingual alerting, AWARN provides the technical capability to pass through alerts in different languages provided by the alert originator. The capabilities that make AWARN ideal to deliver multilingual alerting also enable accessible alerting. Features such as text-to-speech and vibrate-upon-alert for mobile devices, along with all of the rich media content available to users, mean that AWARN alerts will reach many more Americans, including those with hearing or sight limitations.

B. WEA Geo-Targeting

Geo-targeting is "baked into" the ATSC 3.0 standard and thus AWARN. Utilizing geographic location information embedded in the CAP message, combined with the location awareness of receiving devices, AWARN alerts will be displayed only on the devices targeted to receive the alerts. Although the AWARN messages and files are distributed in the broadcast signal across a television station's coverage area, only devices in the geo-targeted space will display the alerts meant for that location.

Thus, the answer to the Commission's question "*Could a device-based solution improve WEA geo-targeting without burdening Participating CMS Provider infrastructure?*" is a clear "yes." The answer to the question, "*Could device-based solutions complement network-based solutions to facilitate the delivery of even more granular WEA messages?*" is also a clear "yes." The key to enabling these solutions is ensuring that the devices can receive AWARN/ATSC 3.0 signals.

G. WEA Prioritization

The Commission is asking for comments on whether it should revise its policies and allow certain alerts to take priority over other data traffic. The NPRM refers to the Commission's *First Report and Order* in establishing what became WEA when the Commission observed, "it would not be in the public interest if urgent calls for help during crises were pre-empted by alert traffic." The Commission's earlier concern about the need to "manage congestion within the CMS provider's infrastructure" remains valid.

Part of the benefits of AWARN is that it can help the Commission and CMS providers mitigate the problem of network congestion in emergencies. By sending alerts to consumer devices via the broadcast signal, it can off-load a large amount of traffic from the wireless network, similar to how smartphones are configured today to access Wi-Fi networks where available. Off-loading at least some of the alerting traffic to AWARN can ensure that the public, as well as first-responders, have continued access to the CMS network for urgent point-to-point calls and texting. This is another benefit from the Commission taking a holistic approach to achieve the goals for the NPRM.

V. Growing Federal Recognition of AWARN

FEMA Testing of AWARN Technology

FEMA is now testing AWARN technology at its IPAWS Lab located at the Joint Interoperability Test Command in Indian Head, Md. [3] Closed-environment testing is being employed to assess AWARN capabilities. The goal is to demonstrate the feasibility and operational deployment of AWARN within the IPAWS suite of technologies and allow public safety officials to gain confidence using IPAWS in a secure environment, according to FEMA. Testing is being conducted with M-EAS using first-generation digital broadcast technology as a solid foundation for advanced emergency alerting using next-gen broadcasting technology.

AWARN Acknowledged By Key Officials

Federal and private sector officials have voiced support for AWARN as a leading technology solution for next-generation emergency alerting. For example, at a November 18, 2015 conference, the *Smart Spectrum Summit: Broadcast/Broadband Hybrid Networks for Public Safety and Other One-to-Many Data Applications*, a key member of Congress,[4] officials from FEMA's National Continuity Programs and the FCC's Public Safety and Homeland Security Bureau, and the CEO of the First Responder Network Authority (FirstNet) all spoke to the importance of AWARN and ATSC 3.0 for the future of emergency communications.[5] Other public safety officials, broadcasters, and financial professionals also voiced support of AWARN and ATSC 3.0.[6]

AWARN Predecessor Recommended by CSRIC III

The first-generation predecessor to AWARN, Mobile EAS, was previously acknowledged for its potential to improve the performance of WEAs. The Final Report of CSRIC III, delivered to the Commission in March 2013, included the following recommendations:

- The FCC should encourage the use of open-source software components to facilitate the implementation of alerting, including Mobile EAS alerts, for broadband devices. The FCC should also consider offering incentives for device manufactures to implement the alerting voluntarily.[7]
- The FCC should revive CMSAAC [Commercial Mobile Service Alert Advisory Committee] to provide recommendations for the next version of CMAS [Commercial Mobile Alert System], taking into consideration the recent advances in mobile devices (i.e., the advent of smartphones), as well as cellular networks (i.e., the ongoing

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[3] "FEMA to Assess Future Over-the-Air Broadcast Alerting Technology," FEMA News Release Number: HQ-15-073, October 20, 2015

[4] "Congressman Encourages Fortified Effort to Educate Congress on Alerting Issues," *Emergency Management*, December 1, 2015

[5] "ATSC 3.0 Could Enhance Emergency Communications, NAB Summit Told," *Consumer Electronics Daily*, November 19, 2015

[6] "AWARN Receives Strong Support at First-Ever Smart Spectrum Summit," blog at AWARN.org, November 2015

[7] CSRIC III WG2 Final Report, March 2013, page 53, section 7.4 – Device Manufacturers

migration to 4G networks) and Mobile EAS (CAP alerts delivered to mobile devices over Mobile DTV broadcasting).[8]

VI. Consider Proposed Rules in Context

It is timely for the Commission to address AWARN's potential to improve WEAs in particular and public alerting in general. The proposed rules coincide with two other major developments. Following the FCC's Spectrum Incentive Auction later this year, the Commission will begin the process of "repacking" the channels of television stations that have chosen to remain on the air. At the same time, the ATSC 3.0 next-generation television broadcasting standard, which enables AWARN, will be nearing final adoption. The public interest would be served by a strategic approach that recognizes the confluence of channel repacking, next-generation broadcasting, and the opportunity to greatly improve the public alert and warning system as part of the same timeline.

The AWARN Coalition urges the Commission to place the Proposed Rulemaking on wireless alerting in context with the post-auction repacking of television channels and the opportunities for a vastly improved public alert and warning system. As NAB Chief Technology Officer and Executive Vice President Sam Matheny has characterized it, the post-auction television broadcasting industry, though smaller, will be uniquely, "high-power, high-tower, and all-IP." This modern, efficient wireless infrastructure will provide a unique capacity for a major upgrade of the U.S. public alert and warning system.

VII. Summary

AWARN presents a rare opportunity to dramatically improve America's public safety communications capability. AWARN can provide this public benefit by utilizing the backbone of the nation's existing television broadcasting transmission capacity and the new technology of ATSC 3.0. It delivers rich media content to an unlimited number of mobile and fixed devices simultaneously, and since AWARN is completely independent of the cellular networks, it can actually reduce stress on those networks in public emergencies. This means high reliability and mass, but targeted, instantaneous distribution.

Americans face a growing threat of natural and manmade disasters. The AWARN Coalition supports the goals of the Proposed Rulemaking. We believe a broader approach is needed to fully accomplish those goals. Only a holistic approach that embraces innovation, wise spectrum use, and device interoperability will provide the American public with the alerting system they need and deserve.

Respectfully submitted on behalf of,

The AWARN Coalition
By:

[8] CSRIC III WG2 Final Report, March 2013, page 55, section 7.8 – Future Alert Dissemination

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